

TREC 2005 Genomics Track Ad Hoc Retrieval Topics

This file contains the topics for the ad hoc retrieval task of the TREC 2005 Genomics Track. There are a total of 50 topics, numbered from 100 to 149. The topics all generally follow a semantic template, with 10 in each of the 5 templates.

Detailed instructions for the documents and submission of results are provided on the track protocol page. Experimental groups may use any resources (e.g., databases, Web sites, etc.) to enhance their queries, as well as edit them manually.

1. Information describing standard methods or protocols for doing some sort of experiment or procedure.

ID	Method or protocol
100	How to “open up” a cell through a process called “electroporation”
101	Exact reactions that take place when you do glutathione S-transferase (GST) cleavage during affinity chromatography
102	Different quantities of different components to use when pouring a gel to make it more or less porous
103	Green fluorescent protein (GFP) tagged proteins to do experiments with tagged proteins
104	How to do a microsomal budding assay - budding of vesicles from microsomes in vitro
105	Purification of rat IgM
106	Chromatin IP (Immuno Precipitations) to isolate proteins that are bound to DNA in order to precipitate the proteins out of the DNA
107	Normalization procedures that are used for microarray data
108	Methods for identifying in vivo protein-protein interactions in time and space in the living cell
109	Standard methods or protocols for fluorogenic 5'-nuclease assay

2. Information describing the role(s) of a gene involved in a disease.

ID	Gene(s)	Disease
110	Interferon-beta	Multiple Sclerosis
111	PRNP	Mad Cow Disease
112	IDE gene	Alzheimer's Disease
113	MMS2	Cancer
114	APC (adenomatous polyposis coli)	Colon Cancer
115	Nurr-77	Parkinson's Disease
116	Insulin receptor gene	Cancer
117	Aapolipoprotein E (ApoE)	Alzheimer's Disease
118	Transforming growth factor-beta1 (TGF-beta1)	Cerebral Amyloid Angiopathy (CAA)
119	GSTM1	Breast Cancer

3. Information describing the role of a gene in a specific biological process.

ID	Gene	Biological Process
120	nucleoside diphosphate kinase (NM23)	tumor progression
121	BARD1	BRCA1 regulation
122	APC (adenomatous polyposis coli)	actin assembly
123	COP2	transport of CFTR out of the endoplasmic reticulum
124	casein kinase II	ribosome assembly
125	Nurr-77	preventing auto-immunity by deleting reactive T-cells before they migrate to the spleen or the lymph nodes
126	P53	apoptosis
127	alpha7 nicotinic receptor subunit gene	ethanol metabolism
128	gamma-aminobutyric acid receptors (GABABRs)	inhibitory synaptic transmission
129	Interferon-beta	viral entry into host cell

4. Information describing interactions (e.g., promote, suppress, inhibit, etc.) between two or more genes in the function of an organ or in a disease.

ID	Genes	Function of organ	Disease
130	BRCA1 regulation of ubiquitin		cancer
131	L1 and L2 in the HPV11 virus	role of L2 in the viral capsid	
132	APC (adenomatous polyposis coli) and wnt		colon cancer
133	phospholipase A2 (PLA2) and SAR1	Endoplasmic reticulum transport (i.e. vesicle budding from the ER)	
134	CFTR and Sec61	degradation of CFTR	which leads to cystic fibrosis
135	Bop and Pes	cell growth	
136	alpha7 nicotinic receptor gene and ApoE gene	neurotoxic effects of ethanol	
137	“Insulin-like” GF and insulin receptor gene	function in skin	
138	HNF4 and COUP-TF I	suppression in the function of the liver	
139	Ret and GDNF	kidney development	

5. Information describing one or more mutations of a given gene and its biological impact or role.

ID	Gene with mutation	Biological impact
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140	BRCA1 185delAG mutation	role in ovarian cancer
141	Huntingtin mutations	role in Huntington's Disease
142	Sonic hedgehog mutations	role in developmental disorders
143	Mutations of NM23	impact on tracheal development
144	Mutations in metazoan Pes	effect on cell growth
145	Mutations of hypocretin receptor 2	narcolepsy
146	Mutations of presenilin-1 gene	biological impact in Alzheimer's disease
147	Mutations of alpha7 nAChR gene	biological impact in alcoholism
148	Mutation of familial hemiplegic migraine type 1 (FHM1)	neuronal Ca ²⁺ influx in hippocampal neurons
149	Mutations of the alpha 4-GABAA receptor	impact on behavior